UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,815	03/23/2005	Takashi Ishii	268185US3PCT	4193

22850 7590 02/12/2007

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
KRUER, STEFAN	
ART UNIT	**PAPER NUMBER**
3654	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/528,815	ISHII ET AL.	
	Examiner	Art Unit	
	Stefan Kruer	3654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10 - 29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10 - 29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *31 August 2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Claim Objections

Claim 22 is objected to because of the following informalities: "a" of "a long axis" is missing. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10, 21, 22, 25, 26 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10, 25, 26 and 27 recite the limitation "the" in "the center portion" and "the upper surface"; "the lower surface"; "the vicinity" and "the side wall"; and "the vicinity", respectively. There are insufficient antecedent bases for these limitations in the claims.

Claim 21, the term "almost equal" is a relative term that renders the claim indefinite. The term "almost equal" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 22, the terms "small" and "long" are relative terms that render the claim indefinite. The terms "small" and "long" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 25 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation "upper surface of the cage-side sheave" is incomprehensible and will be understood to mean an "upper surface of the cage-side sheave supporting beam" for purpose of prosecution.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10 – 11, 13 – 16, 20 and 24 - 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aulanko et al (5,429,211) in view of Root et al (5,957,243).

Re: Claim 10, Aulanko et al disclose:

- a cage (1) guided by a pair of right and left-side guide rails (10);
- a traction sheave (7) disposed behind and near one of the guide rails (Fig. 2), with traction sheave being driven in a rotational axis, whereby the rotational axis of their traction sheave extends in a forward and rearward direction (Col. 8, Line 42) in an alternate suspension arrangement;
- a driving apparatus (6) disposed behind the traction sheave;
- a counterweight (9) guide by a pair of guide rails (11) for vertical motion;

- a pair of right and left cage-side sheaves (4 and 5) that suspend the cage and extend at a direction angle close to that of the rotational axis of the traction sheave (Fig. 4b);
- and a hoist rope (3) composed of a plurality of ropes (Fig. 5) wound around the traction sheave, said hoist rope suspending both cage and counterweight;

however, Aulanko et al are silent regarding a cage-side sheave supporting beam and a cage frame.

Attention is directed to Root et al who teach:

- a cage-side sheave supporting beam (14);
- a cage frame (18, 20) having an upper beam (20) extending in a right and left direction above an upper surface of their cage (16);
- whereby said cage-side sheave supporting beam supports a pair of right and left cage-side sheaves (30, 30) at both ends thereof,
- said cage-side sheave supporting beam being inserted in a vertical gap between their upper beam and said upper surface as well as connected to a center portion of the upper beam with a center portion thereof;

as the feature of their "... variable positioning of the tandem sheave assembly (that) facilitates the installation of the tandem sheave assembly" (Col. 1, Line 56).

It would have been obvious to one of ordinary skill in the art to modify the reference of Aulanko et al with the teaching of Root et al for the benefit reducing installation costs and enhance "operability of the elevator system".

Re: Claim 11, Aulanko et al disclose the cage-side rails extending to the top of the shaft (Fig. 4a, per mounting to 16).

Re: Claim 13, both Aulanko et al and Root et al disclose an angle between the rotational axis of their respective traction sheave and those of their respective cage-side sheaves as approximately 45° (Fig.'s 3, 4b and 4b, Col. 4, Line 8, respectively).

Re: Claim 14, Aulanko et al disclose the cage-side sheaves being disposed near the right and left sidewalls of the cage (Fig. 2).

Re: Claim 15, Aulanko et al disclose the disposition of the cage-side sheaves within a vertical projection of the cage as "...obvious that the hoisting ropes need not necessarily be passed under the car" (Col. 8, Line 30 and Fig. 2).

Re: Claim 16, Aulanko et al disclose the cage-side sheaves disposed symmetrically with respect to the center of the cage as depicted in Figure 4b and furthered by "Passing the ropes diagonally or otherwise obliquely ... which (sic) is an advantageous solution ...to ensure that the car is symmetrically suspended on the ropes with respect to the center of mass of the car" (Col. 8, Line 44).

Re: Claim 20, Aulanko et al disclose their driving apparatus (6) is configured similar to a cylinder disposed concentric with their traction sheave (7) between the traction sheave and a rear inner wall of their elevator shaft (Col. 8, Line 41).

Re: Claim 24, Root et al teach their cage-side sheave supporting beam connected to their upper frame in an inclined manner when viewed vertically from above in keeping with ease of installation and promoting operability.

Re: Claim 25, Root et al teach their cage-side sheave supporting beam having an upper frame that is connected at is center portion to a center portion of a lower surface of their upper frame, in keeping with the variable positioning for installation.

Re: Claim 26, Root et al teach their pair of right and left cage-side sheaves disposed in a vicinity of a side wall of their upper beam.

Re: Claim 27, Aulanko et al disclose one of their right and left cage-side sheaves disposed in a vicinity of their traction sheave when viewed vertically from above.

Re: Claim 28, Root et al teach their cage-side sheave supporting beam configured with a pair of beam members (32) extending parallel to each other and the pair of fright and left cage-side sheaves disposed in a space between the pair of beam members.

Claims 12 and 17 - 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aulanko et al in view of Root et al, as applied to Claim 10, and in further view of Wittur et al (US 2004/0129501, earlier published as WO 02/053486).

Re: Claim 12, though both Aulanko et al and Root et al anticipate a plurality of ropes, they are silent regarding their diameters.

Attention is directed to Wittur et al who teach their ropes having a diameter of 5 to 7 mm and preferably less than 6 mm (Para. 0018), thereby affording incrementally finer sizing for the anticipated (rated) service loads of the cage as well as enhanced effectiveness in lubricating and cleaning the ropes, when compared to the implementation of ropes of larger diameters.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the reference of Aulanko et al and Root et al with the teaching of Wittur et al to gain the benefits of these commercial and performance features.

Re: Claims 17 and 18, though the driving apparatus of Aulanko et al and Root et al are mounted outside of the bounds of their cages, the corresponding device of Wittur et al partially overlaps the cage when seen from a vertical direction (Figures 2 and 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the reference of Aulanko et al and Root et al with the teachings of Wittur et al in order to minimize the twisting of the hoisting ropes for the enhancement of service life as well as the reduction in torque and the associated installation, operation and maintenance costs.

Claims 19 and 21 - 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aulanko et al in view of Root et al, as applied to Claim 10, and in further view of Nakagaki et al (6,598,707).

Re: Claim 19, the traction sheave of Aulanko et al is mounted above the guide rails and Root et al are silent of the positioning of their traction sheave.

Attention is directed to Nakagaki et al who teach their traction sheave (44) disposed below the top (20b) of his cage-side guide rails whereby the cage can travel

vertically above the drive, thereby affording access to the traction sheave and drive from the roof of the cage for maintenance as well as a reduced a elevator shaft length.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the reference of Aulanko et al and Root et al with the teachings of Nakagaki et al for the benefits of reduction in shaft length and facilitating maintenance.

Re: Claim 21, though neither Aulanko et al, Root et al nor Nakagaki et al disclose or teach said cylinder having a diameter effectively equal to that of their traction sheaves, the disclosure of the instant invention acknowledges such as known in the art (Fig. 5).

Re: Claim 22, the cylinder of Aulanko et al is has a diameter larger than that of the traction sheave and Root et al are silent regarding their driving apparatus.

Attention is directed to Nakagaki et al who teach their driving apparatus (41) configured similar to a cylinder having a small diameter (Fig. 2), a long axis (Fig. 10 and a rear end disposed in the vicinity of a rear wall of their elevator shaft, wherein their driving apparatus is mounted above their counterweight in keeping with a compact arrangement to reduce "... the vertical height of a top space of the elevator shaft and (sic) stably suspending an elevator cage" (Col. 1, Line 10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the reference of Aulanko et al and Root et al with the teaching of Nakagaki et al for the benefits of reduced shaft length and stable mounting of a drive.

Re: Claim 23, the driving apparatus of Aulanko et al is mounted above the guide rails and Root et al are silent of the mounting of their driving apparatus.

Attention is directed to Nakagaki et al who teach their driving apparatus (40) supported by their pair of front and rear counterweight-side guide rails (31, 32) for the features of reduced shaft length and stable mounting of their drive.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the reference of Aulanko et al and Root et al with the teachings of Nakagaki et al for space-saving and operability benefits.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aulanko et al in view of Root et al, as applied to Claim 10, and in further view of Narumi et al (5,533,595).

Aulanko et al are silent regarding a cage-side sheave supporting beam and Root et al teach their cage-side supporting beam whereby the rotational axes of their cage-side sheaves are disposed below a lower surface of their cage-side supporting beam.

Attention is directed to Narumi et al who teach their cage-side sheaves (4, 5) having rotational axes disposed on an upper surface of their cage-side supporting beam (6).

It would have been obvious to one of ordinary skill in the art to modify the reference of Aulanko et al and Root et al with the teaching of Narumi et al to utilize an alternative mounting means to minimize obstruction to upward travel of hoisting ropes, as known in the art.

Response to Arguments

Applicant's arguments filed 17 November 2006 have been fully considered but they are not persuasive.

The rejections of the previous office action were in response to the claim language. Applicant's arguments are based on the amended claim language applied to the prior art of reference; consequently, this office action comprises a detailed response to Applicant's arguments.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bauer (6,742,628) is cited for reference of an elevator having a driving apparatus with traction sheave disposed below the upper region of car-side guide rails.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Kruer whose telephone number is 571.272.5913. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy Matecki can be reached on 571.272.6951. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866.217.9197 (toll-free).

SHK
7 February 2007

GENE O. CRAWFORD
SUPERVISORY PATENT EXAMINER